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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/679,613
Filing Date	October 6, 2003
First Named Inventor	David W. Zeitler
Art Unit	3654
Examiner Name	K. Matecki
Attorney Docket Number	RAP04 P-608C

Total Number of Pages in This Submission: 14

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
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  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☑ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) (please Identify below):

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	VAN DYKE, GARDNER, LINN & BURKHART LLP		
Signature			
Printed name	Matthew L. Goska		
Date	July 30, 2007	Reg. No.	42594

CERTIFICATE OF TRANSMISSION/MAILING

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Signature			
Typed or printed name	Matthew L. Goska	Date	July 30, 2007

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit : 3654
Examiner : K. Matecki
Applicant : David W. Zeitler
Application No. : 10/679,613
Filing Date : October 6, 2003
For : **CONVEYOR INDUCT SYSTEM**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Paper in Response to PTO Communication of July 24, 2007 Re Non-Compliant Appeal Brief

Responsive to the Office Action of July 24, 2007, Applicant hereby files a "paper" in accordance with 37 C.F.R. 41.37 addressing the defects in its Appeal Brief filed September 30, 2004. The following section numbers correspond to like-numbered sections in the Appeal Brief filed September 30, 2004 and are believed to be in full compliance with 37 C.F.R. 41.37(c).

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following summary of claimed subject matter makes reference to specific structures disclosed in the specification for purposes of better illustrating a selected embodiment of the invention to the Board of Appeals. The references to the specification, however, should not be interpreted as limiting the scope of the claims beyond what is expressly stated in the claims.

A. Claim 55:

The present invention generally relates to conveyor systems, and more particularly to the induction section of a conveyor sortation system (page 1, lines 5-6). The induction section may include a plurality of tandem conveying surfaces, such as the tandem conveying of second conveyor 24 and take-away conveyor 32 (FIG. 1; page 5, line 23 to page 6, line 3). At least one of the conveying surfaces is an adjustable speed surface, such as surface defined by second conveyor 24 (FIG. 1; page 12, lines 29-30). An article sensor 62 may be positioned alongside the conveying surfaces (FIG. 1; page 11, line 32 to page 12, line 13). A gap control system 40 establishes controlled gaps between articles 34 traveling on the conveyors 22, 24, 30 (page 5, lines 15-18). Gap control system 40, through a gap selector 66 and variable speed motor controller 74, identifies controllable gaps and adjusts the speed of second conveyor 24 via a feedback controller 72 and motor 76 in order to adjust the controllable gap (page 12, line 27 to page 13, line 18). Feedback controller 72 adjusts the gap based upon a position of at least one control point on the article (page 13, lines 16-24). The adjustment of the gap may be carried out via a series of sequentially arranged conveying surface interfaces (page 14, lines 16-19).

B. Claim 65:

An induction subsystem may include a plurality of tandem conveying surfaces, such as the tandem conveying surfaces 26 of first conveyor 22 and second conveyor 24, and the tandem conveying surfaces of second conveyor 24 and take-away conveyor 32 (FIG. 1; page 5, line 23 to page 6, line 3). At least one of the conveying surfaces is an adjustable speed surface, such as the surface defined by second conveyor 24 (FIG. 1; page 12, lines 29-30). An article sensor 62 may be positioned alongside the conveying surfaces (FIG. 1; page 11, line 32 to page 12, line 13), and the article sensor 62 is able to detect multiple gaps between articles at the same time (page 12, lines 3-8). A gap control system 40 establishes controlled gaps between articles 34 traveling on the conveyors 22, 24, 30 (page 5, lines 15-18). Gap control system 40, through a gap selector 66 and variable speed motor controller 74, identifies controllable gaps and adjusts the speed of second conveyor 24 via a feedback controller 72 and motor 76 in order to adjust the controllable gap (page 12, line 27 to page 13, line 18). Feedback controller 72 adjusts the gap based upon a position of at least one control point on the article (page 13, lines 16-24). The adjustment of the gap may be carried out via a series of sequentially arranged conveying surface interfaces (page 14, lines 16-19).

Claim 75:

A method of controlling gaps between articles includes providing a plurality of tandem conveying surfaces, such as the tandem conveying surfaces 26 of first conveyor 22 and second conveyor 24, and the tandem conveying surfaces of second conveyor 24 and take-away conveyor 32 (FIG. 1; page 5, line 23 to page 6, line 3). At least one of the provided conveying surfaces is an adjustable speed surface, such as the surface defined by second conveyor 24 (FIG. 1; page 12, lines 29-30). An article sensor 62 is also provided and positioned alongside the conveying surfaces (FIG. 1; page 11, line 32 to page 12, line 13). Gap control system 40, through a gap selector 66 and variable speed motor controller 74, identifies controllable gaps and adjusts the speed of second conveyor 24 via a feedback controller 72 and motor 76 in order to adjust the controllable gap (page 12, line 27 to page 13, line 18). Feedback controller 72 adjusts the gap based upon a position of at least one control point on the article (page 13, lines 16-24). The adjustment of the gap may be carried out via a series of sequentially arranged conveying surface interfaces (page 14, lines 16-19).

Claim 85:

A method of controlling gaps between articles includes providing a plurality of tandem conveying surfaces, such as the tandem conveying surfaces 26 of first conveyor 22 and second conveyor 24, and the tandem conveying surfaces of second conveyor 24 and take-away conveyor 32 (FIG. 1; page 5, line 23 to page 6, line 3). At least one of the provided conveying surfaces is an adjustable speed surface, such as the surface defined by second conveyor 24 (FIG. 1; page 12, lines 29-30). An article sensor 62 is also provided and positioned alongside the conveying surfaces (FIG. 1; page 11, line 32 to page 12, line 13), and the article sensor 62 is able to detect multiple gaps between articles at the same time (page 12, lines 3-8). Gap control system 40, through a gap selector 66 and variable speed motor controller 74, identifies controllable gaps and adjusts the speed of second conveyor 24 via a feedback controller 72 and motor 76 in order to adjust the controllable gap (page 12, line 27 to page 13, line 18). Feedback controller 72 adjusts the gap based upon a position of at least one control point on the article (page 13, lines 16-24). The adjustment of the gap may be carried out via a series of sequentially arranged conveying surface interfaces (page 14, lines 16-19).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Ground #1: Whether claims 55-94 are invalid under an unspecified portion of 35 U.S.C. §112 because they do not include limitations requiring two conveyor interfaces to have the same frictional and spacing characteristics.

Ground #2: Whether claims 55-94 are invalid under an unspecified portion of 35 U.S.C. §112 because they do not recite either a gap selector or selecting a gap.

~~Ground #3~~: This ground of rejection was retracted by the Examiner in the Examiner's Answer mailed November 1, 2004. (Whether claims 59, 69, 79, and 89 are invalid under 35 U.S.C. §112 for lack of written description because the application allegedly does not disclose the assumption of control points.)

~~Ground #4:~~ This ground of rejection was retracted by the Examiner in the Examiner's Answer mailed November 1, 2004. (Whether claims 59, 69, 79, and 89 are invalid under 35 U.S.C. §132 because the assumption of control points is allegedly new matter.)

Ground #5: Whether claims 60-61, 70-71, 80-81, and 90-91 are invalid under an unspecified portion of 35 U.S.C. §112 because they use the terms "measures" or "measuring" instead of "determines" or "determining."

Ground #6: Whether claims 55-94 are invalid under either 35 U.S.C. §102(b) or 35 U.S.C. §103(a) in light of U.S. Patent No. 4,369,876 issued to Small et al.[1]

X. APPENDIX B (EVIDENCE)

A 37 C.F.R. §1.132 declaration of Jerry Jakeway is attached hereto as Appendix B. This declaration was filed June 21, 2004 and responded to by the Examiner in a response mailed July 8, 2004. This declaration was also submitted in the parent application (serial no. 09/851,021) on January 27, 2003.

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[1] It is not entirely clear whether the Examiner has based this rejection on anticipation under §102(b) or obviousness under §103(a). The Office Action of April 30, 2004 based the rejection on §103(a) obviousness. However, the rejection read like a §102(b) rejection and it was virtually identical to the §102 rejection initially made in the parent application (now U.S. Patent No. 6,629,593). In any event, claims 55-94 are neither anticipated nor rendered obvious by the Small patent.

X. APPENDIX C (RELATED PROCEEDINGS)

There are no related proceedings as specified in 37 C.F.R. §41.37(c)(1)(x). An Appendix C is therefore not attached.

Respectfully submitted,

DAVID W. ZEITLER

By: Van Dyke, Gardner, Linn & Burkhart, LLP

Date: July 30, 2007

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MLG:arr
Enclosures

APPENDIX B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : David W. Zeitler
Application No. : 09/851,021
Group Art Unit : 3651
Filing Date : May 8, 2001
Title : CONVEYOR INDUCT SYSTEM
Attorney Docket No. : RAP04 P-608B
Examiner : Joseph Valenza

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

DECLARATION OF JERRY J. JAKEWAY UNDER 37 C.F.R. §1.132

I, Jerry J. Jakeway, declare as follows:

1. I have been retained as a technical expert by Siemens Dematic, the owner of the above-identified patent application, to evaluate this patent application and the Office Actions issued from the U.S. Patent Office for this application. I submit this declaration in response to the Office Action mailed September 27, 2002. I am being compensated by Siemens Dematic for my work in this regard at the rate of 125 dollars per hour.

2. I am currently a Principal Staff Engineer for Smiths Industries, Grand Rapids, Michigan. I have done consulting work for Siemens Dematic's predecessor companies in the past.

3. I hold bachelor of science degrees in agricultural and electrical engineering from Michigan State University, and have approximately 80 hours of post graduate work at Michigan State University and the Massachusetts Institute of Technology in the field of System Science.

4. Smiths Industries in Grand Rapids was originally founded by Bill Lear in 1930. Today, it is an engineering and manufacturing company providing the latest technology and products to the aerospace and defense markets as well as commercial electronics. The company has designed, developed and manufactured defense, aerospace and commercial aviation electronics systems for more than four decades.

5. Prior to my employment at Smiths Industries, I was employed for two years at Automatixs, Incorporated, Billerica, Massachusetts. I worked on robotic and vision systems that used six-degree-of-freedom robots for welding and sealing applications.

6. Prior to working for Automatixs, Incorporated, I was employed for two years as an Analysis Engineer for Raytheon Corporation, Bedford, Massachusetts. I worked in the system design laboratory and did missile guidance, navigation and control simulation studies.

7. Prior to and during my employment at Raytheon, I was engaged in post-graduate studies at Michigan State University and The Massachusetts Institute of Technology accumulating approximately 80 hours towards a Masters Degree in Agricultural Engineering/System Science.

8. I have read the above-identified patent application, including the several Office Actions and the patent applicant's responses thereto. The examiner has raised issues regarding the four following items: (1) the selection of article gaps, (2) the frictional characteristics and conveyor gaps sizes at the conveyor interfaces, (3) the operation of the system using non-identical articles, and (4) U.S. Patent No. 4,369,876. I address each of these issues below.

Gap Selection

9. The article gap selection process outlined within the specification appears fully disclosed. The selected article gap is simply the farthest downstream gap where control is possible. Control of the article is determined by comparing the location of the article's control point to the reference point. When the article's control point passes by the reference point, the next upstream article gap is selected for controlling. This is evident from the specification, particularly pages 12 and 13.

10. In my opinion, the circuitry necessary to select which article gap to control would not be unduly complex. For example, in the situation depicted in FIG. 1 of the patent application, sensor 62 would detect two article gaps: one between articles 34e and 34f, and another between articles 34f and 34g. Because belt 24 is the belt whose speed is being varied to adjust article gaps, the article gap that would be selected is the gap between articles 34f and 34g. This article gap would be selected until the control point of article 34f reached the reference point. Determining when the control point reached the reference point could be as simple as waiting until the sensor labeled S_1 (shown below in FIG. A) became unblocked. Sensor S_1 is

located upstream of the reference point a distance C_1, which is the same distance the control point of article 34f is from the rear of the article. Once sensor S_1 became unblocked, the gap between articles 34f and 34e would be controlled until sensor S_2 became unblocked due to its detecting the rear edge of article 34e. The selection of further gaps would proceed in a like manner. In my opinion, this is all evident to one skilled in the art from the patent application.

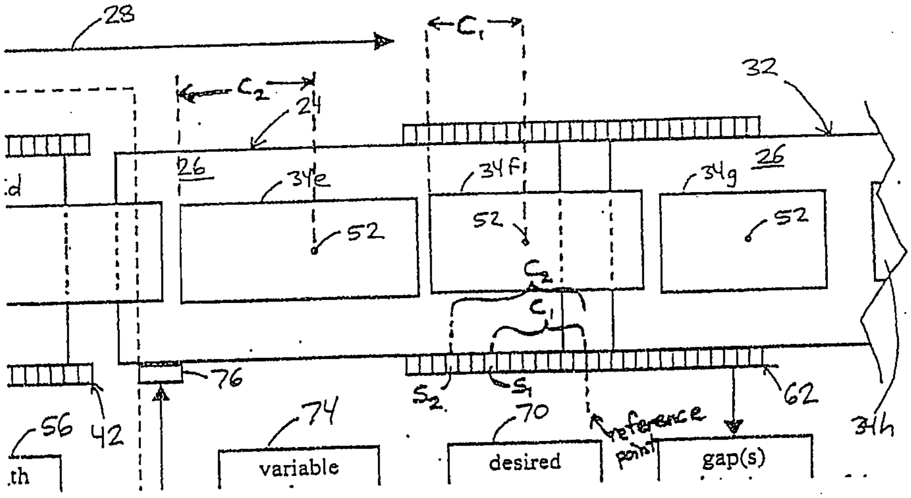

FIG. A

11. From a review of the specification, particularly page 12, lines 2-3, it is clear that sensor array 62 will not always detect multiple gaps between articles. For example, in the situation in which two articles having the same or greater length than sensor array 62 consecutively pass through array 62, the gap between these two articles will never be detected by array 62 simultaneously with another article gap. In other words, when array 62 detects the gap between these two articles, this will be the only gap detected by array 62. Because there is only one gap detected, no gap selection need be made, nor would even be possible. I therefore do not believe the step of gap selection is critical to the invention.

12. One aspect of the invention of this application is the maximization of the amount of time where control of an article is available and then transitioning to the next available article gap. The selected article gap is sequenced upstream based on the projected control point at the interface of conveyors 24, 32 determined by sensor array 42 at the interface of conveyors 22, 24. The essence of the gap selection process is the logic by which control is passed to the next available item. This logic could operate with or without the benefit of the knowledge of an

expected control point switch. As an example, the gap selector could transition to the next item upon the rear edge of the item passing the last sensor on the conveyer.

Frictional Characteristics and Conveyor Gap Sizes

13. The Examiner's contention that frictional coefficients and conveyer gaps are required to determine the control point of the article as defined on page 7 is fundamentally incorrect when an external measurement means as provided by sensor array 42 is present. The control point is defined as follows:

> The control point of an article is the point on the article which, when it is aligned with a specified reference point on the conveyer, will designate the moment in time that the article's speed switches from being controlled from one belt to another belt. (p. 7, lines 17-20).

In the presence of sensor array 42, determination of the control point can proceed as follows:

a.) Locate the most downstream rear edge of an article when available. Time mark and note the sensor location where the gap first appeared.

b.) On successive iterations, relocate the rear most gap. A velocity is calculable from the sensor position of the previous iteration. the sensor position on this iteration, and the elapsed time. The velocity will have a value bounded between the first conveyer and the second conveyer. On an iteration where the calculated velocity demonstrates control according to the second belt, the control point is the distance of the rear most blocked sensor to the reference point.

14. The above process arrives at a value consistent with the definition outlined in the specification. The Examiner's point may be well taken in the absence of sensor array 42. In the absence of a measurement generated by an external sensor, the control point could be calculated given the article weight distribution as a function of longitudinal axis. the frictional coefficients of the surfaces involved, and the gap between the two belts. Inherent in the weight distribution function is the length of the article. If one were to design an experimental apparatus to check how well this calculation went, it would look just like what is disclosed in the patent application if figure 1, item 38. In essence, a key part of this invention is the direct measurement of this point using sensor array 42 rather than the calculation of it; it would be highly impractical to expect a weight distribution function to be submitted for every article.

15. The examiner's point of frictional coefficient and belt gaps differences for use in downstream gap control devices, such as conveyors 24 and 32 of FIG. 1, appears to be worth considering at first glance. If it is contended that the control point at the interface of conveyors 24, 32 may be different than the control point in going from conveyors 22 to 24 when the friction coefficients have a different ratio, or the conveyor gap sizes are different, this reviewer agrees. However to one schooled in the art, there is still utility in measuring the control point at the interface of conveyors 22, 24 and mathematically mapping this measured value to a predicted value at the interface of conveyors 24, 32. This mapping could be as simple as a linear function of the form:

Control Point 24_32 = a*Control_Point_22_24 + b

which relates the control point determined at the interface of conveyors 22, 24 to the control point of the articles at the interface of the conveyors 24 and 32.

16. On a second look at using the control point value in a downstream conveyor, there are subtle aspects to the closed loop control of the article gap and subsequent synchronization of speed at the point of handoff downstream minimizing the practical effect of any frictional interface difference. A person skilled in the art would conclude that the speed of the conveyor's 24 and 32 would be synchronized at the moment an article was handed off from conveyor 24 to conveyor 32. To not synchronize these speeds would disrupt the size of the article gaps created by gap controller 40. If the speed of the two conveyors 24, 32 are the same at the point of handoff, the frictional coefficient differences and belt gap will have no effect. It therefore is my opinion that the invention does not require the interface of conveyors 24 and 32 to have the same frictional characteristics as the interface of conveyors 22 and 24. Further, it is my opinion that the size of the conveyor gaps at the interfaces of conveyors 22, 24 and 24, 32 does not need to be identical.

Non-Identical Articles

17. From my review of the patent application, it is clear that the system disclosed therein is intended to operate using articles that may or may not be identical to each other. In fact, one of the key purposes of control point determination unit 56 is to determine the control point of articles that have different sizes, shapes, weights, etc. If all articles were identical, then there would be little purpose to having unit 56 determine control points on more

than one article. A person skilled in this field of art would therefore conclude that the invention of this patent application was not limited to systems that handled only identical articles.

U.S. Patent No. 4,369,876 Issued to Small

18. The Conveyer Induct System of the present application solves a substantially different problem than the Multi-Layer Coating Apparatus System and Method of the Small patent. One of the primary goals of the present invention is to maximize the throughput of the material handling-system. Limitations in the throughput of this system will be the speed and coordination of the conveyers themselves. The limitation in throughput within the Small system, however, is the coating process itself. In other words, the coating process operates at a much lower speed (2-4 ft/sec) than conveyor-type material handling systems, like those of the present invention. The induction system proposed by Small can overtake the coating process and easily maintain gap separation. An analogous problem to the Small problem is to maintain equal automobile separation on the freeway once the traffic backs up. This is quite a different problem than attempting to force the automobiles to traverse the freeway at the very limits of controllability of each vehicle.

19. The disparity in speed capability between the system of the present application and the coating process proposed by Small results in a more tractable problem. The problem is simplified as the first two stages of the induct system described by Small, so called chamber A and B along with free conveyers 46 and 86, will handle one and only one article at a time as opposed to multiple articles required by the induction system described in the pending application. It is clear that the first two stages proposed by Small performs two basics functions (1) move the article through the air lock as quickly as possible, minimizing the disruption to the vacuum of the system, and (2) synchronize to the downstream feed rate of the coating process. This process is described in reasonable detail on page 10 lines 54-68, and page 11 lines 1-34. In brief, the major items of the Induct System of Small includes the following:

1.) endless induction conveyer 27 feeding endless conveyer 46 contained within chamber A.
2.) endless conveyer 86 contained within chamber B fed by endless conveyer 46, and feeding endless conveyer 92 contained within chamber C.
3.) A conveyer separation assembly 88 at the exit of chamber B and before chamber C
4.) Endless conveyer 92 contained within chamber C.

The described operation given within Small precludes conveyer 46 and 86 handling more than one article at a time. The operation of the mechanism is summarized below:

1.) When the system is ready, a frame is placed on conveyer 27, valve V1 opens and the frame is quickly shuttled into chamber A (at 72 Ft/Sec).
2.) Valve V1 is closed and vacuum is applied to chamber A.
3.) When the vacuum reaches the prescribed set-point, and the spacing sensor at the exit of chamber B indicates that the previous sheet in chamber B has cleared conveyer 86, then and only then will conveyers 46 and 86 act in concert to shuttle the plate at 72 ft/min from chamber A to chamber B.
4.) The sheet entering chamber B will shuttle from chamber A to chamber B will travel at 72 ft/min until the leading edge of the sheet approaches the trailing edge of the previous sheet which is downstream from conveyer 86. At this point, the spacing control circuitry will force conveyer 86 to synchronize in speed to conveyer 92 in the steady state. This condition will be maintained until the trailing edge of the newly introduces sheet into chamber B clears the first sensor of spacing mechanism 88.

20. The above process insures that conveyer 86 has one and only one sheet on it at a time. There is no decision process regarding when to hand off the controlling process from one gap to the next as the conveyer 86 is only carrying one item at a time. No determination of control points is made in the Small patent, nor is any method of control taught for multiple items carried on the variable speed conveyer 86. The ability to handoff control from one item to the next with a prime intention of maximizing material handling through-put is an important feature of the present application. This aspect is totally missing form the Small disclosure.

21. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Jan 23, 2003
Date

Jerry J. Jakeway
Jerry J. Jakeway